

FLIGHT SUMMARY REPORT

Flight #: 91-071
Date: 30 March 1991
Sensor Package: Multispectral Atmospheric Mapping Sensor
(MAMS)
Wild-Heerbrug RC-10
Area(s) Covered: Coastal Louisiana

Investigator(s): Menzel, University of Wisconsin
Flight Request: 91T252

Aircraft #: 706
Julian Date: 089

SENSOR DATA

Accession #:	-----	04203
Sensor ID #:	102	023
Sensor Type:	MAMS	RC-10
Focal Length:	-----	6" 153.21 mm
Film Type:	-----	High Definition Aerochrome Infrared SO-131
Filtration:	-----	.10B
Spectral Band:	-----	510-900 nm
f Stop:	-----	4
Shutter Speed:	-----	1/125
# of Frames:	-----	144
% Overlap:	-----	60
Quality:	Excellent	Excellent
Remarks:		

Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor used for data collection during this flight.

Multispectral Atmospheric Mapping Sensor

The Multispectral Atmospheric Mapping Sensor (MAMS) is a modified Daedalus Scanner flown aboard the ER-2 aircraft. It is designed to study weather related phenomena including storm system structure, cloud-top temperatures, and upper atmosphere water vapor. The scanner retains the eight silicon-detector channels in the visible/near-infrared region found on the Daedalus Thematic Mapper Simulator, with the addition of four channels in the thermal infrared relating to specific water vapor features. The specific bands are as follows:

<u>Daedalus Channel</u>	<u>Wavelength, μm</u>
1	LSBs for Channels 9-12
2	0.45 - 0.52
3	0.52 - 0.60
4	0.57 - 0.67
5	0.60 - 0.73
6	0.65 - 0.83
7	0.72 - 0.99
8	0.83 - 1.05
9	3.55 - 3.93 low range
10	3.55 - 3.93 high range
11	10.3 - 12.1
12	12.5 - 12.8

Sensor specifications are as follows:

IFOV:	5.0 mrad
Ground Resolution:	325 feet (99 meters) at 65,000 feet
Total Scan Angle:	86°
Swath Width:	20 nmi (37 km) at 65,000 feet
Pixels/Scan Line:	716
Scan Rate:	6.25 scans/second
Ground Speed:	400 kts (206 m/second)
Digitization:	8-bit channels 2-8
	10-bit channels 9-12

The data will not be archived at EROS Data Center because this is an experimental system with low spatial resolution and unique spectral characteristics. As all scenes will be primarily cloud-covered there would be little terrestrial application for the data. Further information concerning the data can be obtained from principal investigator, Gregory S. Wilson, Atmospheric Effects Branch, George C. Marshall Space Flight Center, National Aeronautics and Space Administration, Marshall Space Flight Center, Alabama 35812-5001.

NOTE: Information on data tape format, logical record format, and scanner calibration data may be obtained from the NASA-Ames Aircraft Data Facility at (415) 604-6252 or FTS 464-6252.

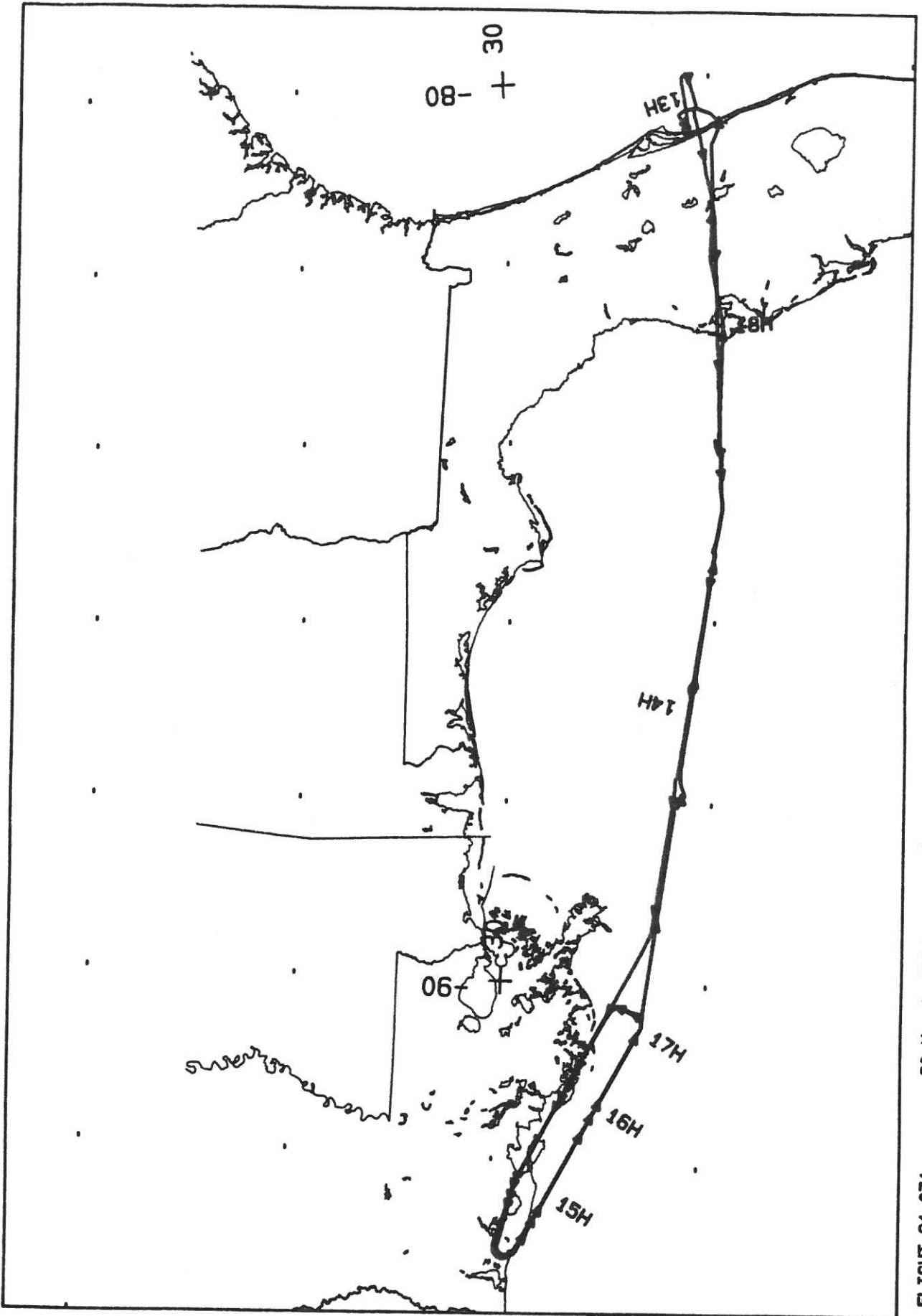
CAMERA FLIGHT LINE DATA

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Sensor # 023

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	7294-7311	14:30:23	14:46:46	65000/19800	30-80% cumulus
C - D	7312-7333	14:56:07	15:16:23	"	10-90% cumulus (frames 7312-7329); 80-90% cumulus and cirrus (frames 7330-7333)
A - B	7334-7351	15:21:19	15:37:44	"	80% cumulus and cirrus (frames 7334-7336) 10-80% cumulus (frames 7337-7349)
C - D	7352-7374	15:47:22	16:08:36	"	10-90% cumulus (frames 7355-7370); 80-90% cumulus and cirrus (frames 7371-7374)
A - B	7375-7391	16:13:36	16:29:03	"	80-90% cumulus and cirrus (frames 7375-7378); 10-70% cumulus (frames 7379-7381); 10% cumulus (frames 7385-7388)
C - D	7392-7415	16:39:06	17:01:18	"	10-90% cumulus (frames 7398-7408); 80-90% cumulus and cirrus (frames 7409-7415)
D - E	7416-7437	17:02:16	17:22:35	"	80-90% cumulus and cirrus (frames 7416-7423); 80-90% cumulus (frames 7429-7433); 80-90% cumulus and strato-cumulus (frames 7434-7437)

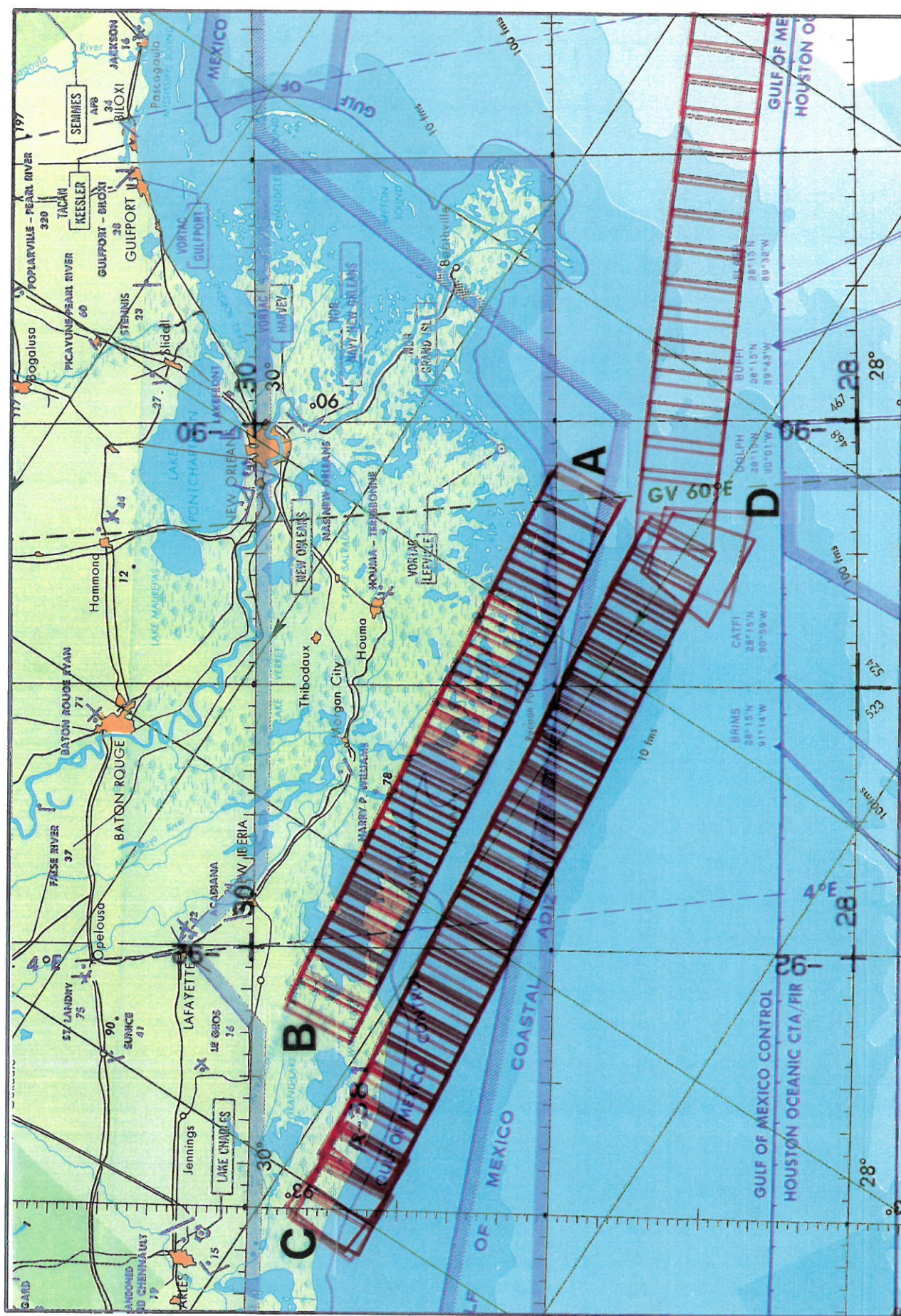


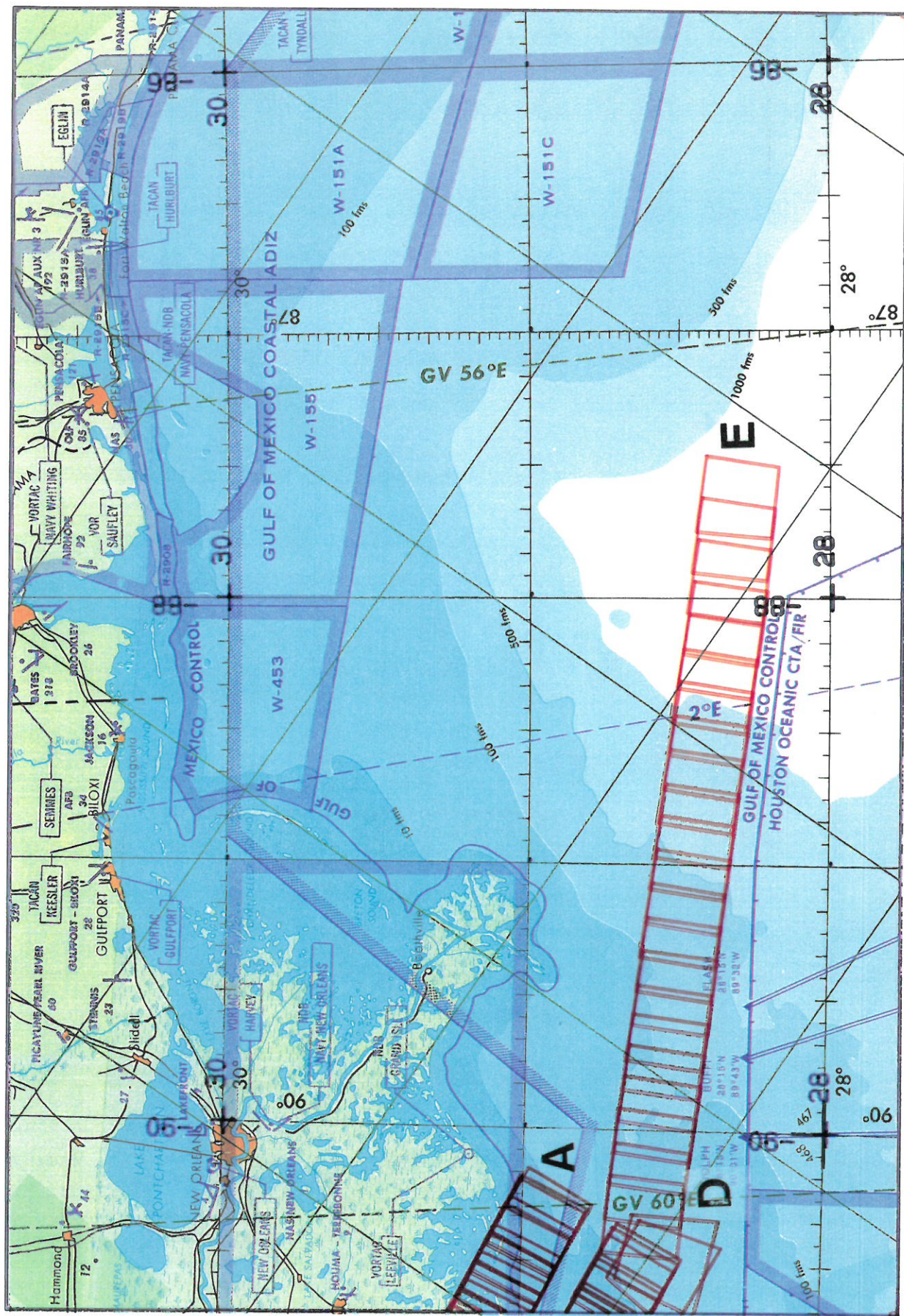
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A/C 706

MAMS / RC-10





FLIGHT 94-071

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JNC 44